

WHAT IS CLAIMED IS:

1. An apparatus for measuring upstream signal quality of cable modem communications in a DOCSIS network, said apparatus comprising:

downstream analysis means for analyzing a downstream communication channel of the DOCSIS network and generating a relational database containing MAC addresses and corresponding SID addresses associated with specific cable modems provided in the DOCSIS network;

upstream analysis means for analyzing an upstream communication channel to identify upstream CM signal corresponding to a specific cable modem based on timing information derived in part from the relational database.

2. An apparatus as claimed in claim 1, wherein the downstream analysis means down-converts and demodulates an RF modulated downstream DOCSIS channel, analyzes range-response frames originating from a CMTS provided in the DOCSIS network, and correlates unique cable modem MAC addresses to CMTS assigned unique SID addresses to generate the relational database.

3. An apparatus as claimed in claim 2, wherein the downstream analysis means includes means for examining downstream MAP messages originating from the CMTS and determines timing information corresponding to a respective CM based on information contained in the MAP messages and the relational database.

4. An apparatus as claimed in claim 1, wherein the upstream analysis means includes down-converts and demodulates a specific upstream CM signal and calculates an Modulation Error Ratio.

5. An apparatus for measuring upstream signal quality of cable modem communications in a DOCSIS network, said apparatus comprising:

control means for entering at least one of a selected MAC address and a selected SID address; and

upstream analysis means for analyzing CM burst packets on an upstream channel of the DOCSIS network, wherein the upstream analysis means analyzes only selected CM burst packets having a MAC address or SID address that matches the selected MAC address or selected SID addresses and rejects all packets not matching the MAC or SID criteria.

6. An apparatus as claimed in claim 5, further comprising means for analyzing the selected CM burst packets to determine an Modulation Error Ratio.

7. A method of measuring upstream signal quality of cable modem communications in a DOCSIS network comprising:

analyzing a downstream communication channel of the DOCSIS network;

generating a relational database containing MAC addresses and corresponding SID addresses associated with specific cable modems provided in the DOCSIS network;

analyzing an upstream communication channel to identify upstream CM signal corresponding to a specific cable modem based on timing information derived at least in part from the relational database.

8. A method as claimed in claim 7, wherein the analysis of the downstream communication channel includes down-converting and demodulating an RF modulated downstream DOCSIS channel, analyzing range-response frames originating from a CMTS provided in the DOCSIS network, and correlating unique cable modem MAC addresses to CMTS assigned unique SID addresses to generate the relational database.

9. An apparatus as claimed in claim 8, wherein the analysis of the downstream communication channel further includes examining downstream MAP messages originating from the CMTS and determining timing information corresponding to a respective CM based on information contained in the MAP messages and the relational database.

10. An apparatus as claimed in claim 7, wherein the analysis of the upstream communication channel includes down-converting and demodulating a specific upstream CM signal and calculating an Modulation Error Ratio.

11. A method for measuring upstream signal quality of cable modem communications in a DOCSIS network, said apparatus comprising:

entering at least one of a selected MAC address and a selected SID address; and

analyzing CM burst packets on an upstream channel of the DOCSIS network, wherein the analysis is performed only on selected CM burst packets having a MAC address or SID address that matches the selected MAC address or selected SID address.

12. A method as claimed in claim 11 further comprising analyzing the selected CM burst packets to determine an Modulation Error Ratio.

13. An apparatus for measuring signal quality of cable modem communications in a DOCSIS network, said apparatus comprising:

a downstream (DS) RF input port, an upstream (US) RF input port, and a combined DS/US RF input port;

a filter device coupled to the DS/US RF input port, wherein the filter device separates a combined DS/US RF signal applied to the DS/US RF input port into a filtered DS signal and a filtered UP signal;

a coupling device coupled to receive a DS signal applied to the DS RF input port, an US signal applied to the US RF input port and the filtered DS and US signals from the filter device;

a DS tuner & demodulator and an US tuner & demodulator coupled to the coupling device means;

a media access control (MAC) processor coupled to the DS tuner & demodulator and the US tuner & demodulator; and

a control processor coupled to the MAC processor.